



Air Quality Permitting Technical Memorandum

TIER II Operating Permit and Permit to Construct No. 077-00017

**Lamb Weston, Inc.
American Falls, ID**

**Prepared by: Stephen Coe
Associate Air Quality Engineer**

**Project No. T2-010320
April 2, 2002**

FINAL PERMIT

TABLE OF CONTENTS

LIST OF ACRONYMS	3
PURPOSE.....	4
PROJECT DESCRIPTION	4
SUMMARY OF EVENTS	4
DISCUSSION	4
FEES	8
RECOMMENDATIONS	8
APPENDIX A - EMISSION CALCULATIONS	
APPENDIX B - MODELING	

LIST OF ACRONYMS

AAC	Acceptable Ambient Concentration
ACFM	Actual Cubic Feet Per Minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DEQ	Idaho Department of Environmental Quality
dscf	Dry Standard Cubic Feet
EF	Emission Factor
EPA	United States Environmental Protection Agency
gpm	Gallons Per Minute
gr	Grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
HC	Hydro-Carbon
IDAPA	Idaho Administrative Procedures Act
km	Kilometer
lb/hr	Pound Per Hour
MACT	Maximum Available Control Technology
MMBtu	Million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
O ₃	Ozone
PM	Particulate Matter
PM ₁₀	Particulate Matter with an Aerodynamic Diameter of 10 Micrometers or Less
ppm	Parts Per Million
PSD	Prevention of Significant Deterioration
PTC	Permit To Construct
PTE	Potential To Emit
SCC	Source Classification Code
scf	Standard Cubic Feet
SIP	State Implementation Plan
SM	Synthetic Minor
SO ₂	Sulfur Dioxide
TSP	Total Suspended Particulates
T/yr	Tons Per Year
µm	Micrometers
VOC	Volatile Organic Compound

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 200 and 400, *Rules for the Control of Air Pollution in Idaho*, for Permit to Construct and Tier II operating permits. This technical memorandum serves as an addition to the technical memorandum dated June 2, 2000.

PROJECT DESCRIPTION

Lamb Weston is proposing to revise its Tier II air operating permit to include the use of alternate fuels (diesel (0.05%) and cooking oil), as alternates to natural gas, the primary fuel source for the plant's combustion boilers, at its American Falls facility (2975 Lamb Weston Road, American Falls). These changes will allow the plant more flexibility in plant operations and is a necessary energy conservation strategy.

Lamb Weston requested the application be processed expeditiously as an energy project consistent with Governor Kempthorne's Directive 2001-02, dated February 22, 2001. The directive instructs the Idaho Department of Environmental Quality (DEQ) to expedite review of applications for energy generation projects.

SUMMARY OF EVENTS

On October 17, 2001, the DEQ received an application from Lamb Weston to add the capability to burn both 0.05% sulfur diesel and vegetable oil as alternate fuels in Boilers 1, 2, and 3. Additionally, as part of the alternate fuel request Lamb Weston is proposing an increase in the permit limit for natural gas for the plant and will accept production limits to stay a synthetic minor. On November 7, 2001, the application was determined complete. On December 28, 2001 the signed consent order was issued.

DISCUSSION

1. Equipment Listing

Boiler 1 will use the existing low-NO_x burner with the addition of the capability to burn the oils. Boiler 2 and 3 will use burners, which were part of the original boiler package, but are not currently in service.

2. Emission Estimates

The applicant provided emissions for the fuel change and natural gas limit increase using emissions estimated from a stack testing at a similar source and AP-42 values. Since no AP-42 data are available, the emissions factors for vegetable oil were obtained from source testing a similar source at another Lamb Weston facility. The emissions in Table 1 are expected if the facility operates at maximum capacity (i.e., at the potential to emit) using diesel, vegetable oil, and natural gas. Emissions calculations are provided in Appendix A.

Table 1 POTENTIAL FACILITY EMISSIONS

Pollutants	Emission Rate	
	lb/hr	T/yr
VOCs (as Total HC)	3.75	16.43
Carbon Monoxide (CO)	26.04	99.00
Nitrogen Oxides (NO _x)	39.64	99.00
Particulate Matter (PM ₁₀)	20.36	81.74
Sulfur Dioxide (SO ₂)	10.04	43.99

3. Modeling

The applicant modeled emissions using ISCST3 Version 00101 with the regulatory default options. Surface meteorological data for Pocatello with mixing height data for Boise from the SCRAM Web site was used for the modeling. Pocatello surface data and Boise mixing height data for 1987-1991 was used because those are the most recent and applicable data available.

Estimated concentrations from the proposed project were combined with background concentrations to determine the total ambient concentrations for each pollutant. When running the facility at maximum potential to emit, modeling predicts none of the criteria pollutants will exceed their respective ambient air quality standards. In addition, toxic air pollutants from the water heater will not exceed any standards. Therefore, the project is expected to be in compliance with all ambient air quality standards. Modeling results are given in Appendix B.

4. Facility Classification

This facility is a Potato Product Manufacturer, Standard Industrial Classification code 2037. The facility is classified "SM".

5. Area Classification

American Falls is located in Power County, Air Quality Control Region 61, UTM Zone 12. Power County is designated as unclassifiable for all criteria air pollutants.

6. IDAPA 58.01.01.201 Permit to Construct Required

A permit to construct will be required for this source. This is in accordance with direction received from the Air Program Permitting Office. See Marjorie MartzEmerson's February 22, 2001, memorandum Response to Governor's Directive on Siting and Permitting Process, option 4.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

Toxic emissions were estimated by the applicant using AP-42 or biogas analysis emissions factors. The toxic emissions do not exceed their AACs in IDAPA 58.01.01.586.

IDAPA 58.01.01.401

Tier II Operating Permit

The use of a potential to emit limitation to exempt the facility from Tier I permitting requirements is authorized.

IDAPA 58.01.01.403

Permit Requirements for Tier II Sources

Tier II sources must comply with all applicable local, state, or federal emissions standards. The source will not cause or significantly contribute to a violation of any ambient air quality standard.

IDAPA 58.01.01.404.01(c)

Opportunity for Public Comment

An opportunity for public comment shall be provided on Tier II operating permit. Since there is an increase in emissions a public comment period is required.

IDAPA 58.01.01.404.04

Authority to Revise or Renew Operating Permits

The director may approve a revision of any Tier II operating permit or renewal of any Tier II operating permit provided the stationary source or facility continues to meet all applicable requirements of Sections 400 through 406.

IDAPA 58.01.01.406

Obligation to Comply

Receiving a Tier II operating permit shall not relieve any owner or operator of the responsibility to comply with all applicable local, state, and federal rules and regulations.

IDAPA 58.01.01.470

Permit Application Fees for Tier II Permits

Any person applying for a Tier II permit shall pay permit application fees of \$500 for each permit requested or amended.

IDAPA 58.01.01.577

Ambient Air Quality Standards for Specific Air Pollutants

Emissions of pollutants listed in IDAPA 58.01.01.577 were shown to be in compliance with the ambient air quality standards. See Appendix B.

IDAPA 58.01.01.625

Visible Emission Limitation

A person shall not discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity.

IDAPA 58.01.01.650

General Rules for the Control of Fugitive Dust

All reasonable precautions shall be taken to prevent the generation of fugitive dust.

40 CFR 60

New Source Performance Standards

No NSPS standards are applicable for this facility. The addition of low NO_x burners in 2000 reduced the boiler heat input from 133 MMBtu/hr to 98 MMBtu/hr. A letter from Doug Hardesty of Region X EPA states "EPA, has determined that NSPS Subpart Db ceases to apply to this boiler due to this change in heat input and because the boiler has met the requirements."

40 CFR 61 and 63

National Emission Standards for Hazardous Air Pollutants and
Maximum Achievable Control Technology

No subparts of 40 CFR 61 or 63 are applicable.

7. Permit Requirements

7.1 Emission Limits

Emission limits on specific air pollutants are set at the potential to emit as shown in Table 2 below.

Table 2. FACILITY EMISSION LIMITS

Pollutants	Emission Rate	
	lb/hr	T/yr
VOCs (as Total HC)	--	--
Carbon Monoxide (CO)	--	99.00
Nitrogen Oxides (NO _x)	--	99.00
Particulate Matter (PM ₁₀)	20.36	81.74
Sulfur Dioxide (SO ₂)	--	--

7.2 Operating Requirements

The facility is allowed to burn either natural gas, 0.05% sulfur diesel, or vegetable oil in Boilers 1, 2, and 3. Boiler 4 and the rest of the facility shall burn only natural gas.

8. Permit Coordination

Currently, Lamb Weston operates one other permitted facility within the State of Idaho, located in Twin Falls.

9. Aerometric Information Retrieval System (AIRS) Information**AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM**

AIR PROGRAM	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION
POLLUTANT							A – Attainment U – Unclassifiable N – Nonattainment
SO ₂	B						U
NO _x	SM						U
CO	SM						U
PM ₁₀	B						U
PT (Particulate)	B						U
VOC	B						U
THAP (Total HAPs)	B						U
			APPLICABLE SUBPART				
			Db				

AIRS/AFS CLASSIFICATION CODES:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

FEES

Fees apply to this facility in accordance with IDAPA 58.01.01.470. The facility is subject to permit application fees for this revised Tier II operating permit of \$500.

RECOMMENDATIONS

Based on the review of the application materials and all applicable state and federal regulations, staff recommends DEQ issue a proposed Tier II operating permit and Permit to Construct to Lamb Weston, Inc. An opportunity for public comment on the air quality aspects of the proposed operating permit shall be provided in accordance with IDAPA 58.01.01.404.01.c. staff members have notified the facility in writing of the required Tier II application fee of \$500. the permit will be issued upon receipt of the fee.

APPENDIX A

Lamb Weston, American Falls

Emission Calculations

Lamb-Weston, American Falls Process Emissions

Current Permitted Line Production

	Current Permitted Line Production						Estimated Emissions					
							PM10			VOC		
	ton/hr	ton/day	ton/yr	Component Production			Emission Factor lb/ton	Emissions		Emission Factor lb/ton	Emissions	
					ton/hr	ton/yr		lb/hr	ton/yr		lb/hr	ton/yr
Lines 1 & 2 2 Dryers & 2 Fryers (Basis - 6/2/2000 Permit)	38.79	931	223,440	2 Dryers 2 Fryers	38.79	223,440	0.0636 0.1	2.467 3.879	7.11 11.17	0.031	1.203	3.46
Flake 2 Dryers (Basis - 6/2/2000 Permit)	1.59	38	9,120	Drum Dryer 1	0.795	4,560	0.0636	0.051	0.15			
				Drum Dryer 2	0.795	4,560	0.0636	0.051	0.15			
Kice Baghouse				Kice	1.59	9,120	0.035	0.056	0.16			
Pneumafil Baghouse				Pneumafil (Collects from 5 areas)	1.59	9,120	0.028	0.223	0.64			
Line 3 Dryer (Retrograde) & Roaster (Basis - 10/10/2000 Permit)	8.30	200	73,000	Dryer (Retrograde)	8.30	73,000	0.0636	0.528	2.32			
				Roaster	All drying emissions are assumed to be from the retrograde.							
Line 5 Dryer (Retrograde) & 2 Fryers (Basis - 10/10/2000 Permit)	4.10	98	35,770	Dryer (Retrograde)	4.10	35,770	0.0636	0.261	1.14			
				Fryer 1	2.05	17,885	0.1	0.205	0.89	0.031	0.064	0.28
				Fryer 2	2.05	17,885	0.1	0.205	0.89	0.031	0.064	0.28

Estimated Future Production

	Estimated Future Production						Estimated Emissions					
							PM10			VOC		
	ton/hr	ton/day	ton/yr	Component Production			Emission Factor lb/ton	Emissions		Emission Factor lb/ton	Emissions	
					ton/hr	ton/yr		lb/hr	ton/yr		lb/hr	ton/yr
Line 1 Dryer & Fryer	39.375	945	310,905	Dryer	39.375	310,905	0.0636	2.504	9.89			
				Fryer (Reyco)	39.375	310,905	0.1	3.938	15.55	0.031	1.221	4.82
Line 2 Dryer & Fryer	21.25	510	167,790	Dryer	21.25	167,790	0.0636	1.352	5.34			
				Fryer (Ducon)	21.25	167,790	0.1	2.125	8.39	0.031	0.659	2.60
Flake 2 Dryers	2.11	50.64	16,661	Drum Dryer 1	1.055	8,330	0.0636	0.067	0.26			
				Drum Dryer 2	1.055	8,330	0.0636	0.067	0.26			
Kice Baghouse				Kice	2.11	16,661	0.035	0.074	0.29			
Pneumafil Baghouse				Pneumafil (Collects from 5 areas)	2.11	16,661	0.028	0.295	1.17			
Mikro-Pulsair				Mikro-Pulsair (Collects from 2 areas)	2.11	16,661	0.035	0.148	0.58			
Line 3 Dryer (Retrograde) & Roaster	11.08	265.92	87,488	Dryer (Retrograde)	11.08	87,488	0.0636	0.705	2.78			
				Roaster	All drying emissions are assumed to be from the retrograde.							
Line 5 Dryer (Retrograde) & 2 Fryers	5.43	130.32	42,875	Dryer (Retrograde)	5.43	42,875	0.0636	0.345	1.36			
				Fryer 1	2.715	21,438	0.2	0.543	2.14	0.031	0.084	0.33
				Fryer 2	2.715	21,438	0.2	0.543	2.14	0.031	0.084	0.33

Lamb-Weston, American Falls Fuel Burning Emissions

Emission Factors

			PM	PM10	SO ₂	NO _x	CO	VOC
Boiler 1	Natural Gas	lb/MMCF	7.6	7.6	0.6	45	84	5.5
	Diesel	lb/1000 gal	3.3	2.3	7.1	10	5	0.2
	Vegetable Oil	lb/1000 gal	1.69	1.69	0.11	12.5	5	0.13
Rest of Plant	Natural Gas	lb/MMCF	7.6	7.6	0.6	100	84	5.5
	Diesel	lb/1000 gal	3.3	2.3	7.1	20	5	0.2
	Vegetable Oil	lb/1000 gal	1.69	1.69	0.11	25	5	0.13

Emissions (lb/hr)

	Btu/hr	Boiler Capacity			PM	PM10	SO ₂	NO _x	CO	VOC
		Fuel			lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Boiler 1	98,500,000	Natural Gas	MMCF/hr	0.097	0.734	0.734	0.058	4.346	8.112	0.531
		Diesel	1000 gal/hr	0.719	2.373	1.654	5.105	7.190	3.595	0.144
		Vegetable Oil	1000 gal/hr	0.758	1.281	1.281	0.083	9.471	3.788	0.099
			Maximum		2.373	1.654	5.105	9.471	8.112	0.531
Boiler 2	47,180,000	Natural Gas	MMCF/hr	0.046	0.352	0.352	0.028	4.625	3.885	0.254
		Diesel	1000 gal/hr	0.344	1.136	0.792	2.445	6.888	1.722	0.069
		Vegetable Oil	1000 gal/hr	0.363	0.613	0.613	0.040	9.073	1.815	0.047
			Maximum		1.136	0.792	2.445	9.073	3.885	0.254
Boiler 3	46,726,800	Natural Gas	MMCF/hr	0.046	0.348	0.348	0.027	4.581	3.848	0.252
		Diesel	1000 gal/hr	0.341	1.126	0.784	2.422	6.821	1.705	0.068
		Vegetable Oil	1000 gal/hr	0.359	0.607	0.607	0.040	8.986	1.797	0.047
			Maximum		1.126	0.784	2.422	8.986	3.848	0.252
Boiler 4	2,500,000	Natural Gas	MMCF/hr	0.0025	0.019	0.019	0.0015	0.245	0.206	0.013
Line 2 Dryer	19,500,000	Natural Gas	MMCF/hr	0.0191	0.145	0.145	0.0115	1.912	1.606	0.105
Line 5 Retrograde	4,800,000	Natural Gas	MMCF/hr	0.0047	0.036	0.036	0.0028	0.471	0.395	0.026
Line 3 Roaster	7,400,000	Natural Gas	MMCF/hr	0.0073	0.055	0.055	0.0044	0.725	0.609	0.040
Line 5 Fryer 1	4,800,000	Natural Gas	MMCF/hr	0.0047	0.036	0.036	0.0028	0.471	0.395	0.026
Line 5 Fryer 2	4,800,000	Natural Gas	MMCF/hr	0.0047	0.036	0.036	0.0028	0.471	0.395	0.026
Space Heaters	79,670,000	Natural Gas	MMCF/hr	0.0781	0.594	0.594	0.0469	7.811	6.561	0.430

Emissions (ton/yr)

	Btu/hr	Boiler Capacity			PM	PM10	SO ₂	NO _x	CO	VOC
		Fuel			ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
Boiler 1	98,500,000	Natural Gas	MMCF/yr	845.94	3.21	3.21	0.25	19.03	35.53	2.33
		Diesel (59% Capacity)	1000 gal/yr	3,716	6.13	4.27	13.19	18.58	9.29	0.37
		Vegetable Oil	1000 gal/yr	6,637	5.61	5.61	0.37	41.48	16.59	0.43
			Maximum		6.13	5.61	13.19	41.48	35.53	2.33
Boiler 2	47,180,000	Natural Gas	MMCF/yr	327.99	1.25	1.25	0.10	16.40	13.78	0.90
		Diesel (59% Capacity)	1000 gal/yr	1,780	2.94	2.05	6.32	17.80	4.45	0.18
		Vegetable Oil	1000 gal/yr	2,300	1.94	1.94	0.13	28.75	5.75	0.15
			Maximum		2.94	2.05	6.32	28.75	13.78	0.90
Boiler 3	46,726,800	Natural Gas	MMCF/yr	324.84	1.23	1.23	0.10	16.24	13.64	0.89
		Diesel (59% Capacity)	1000 gal/yr	1,763	2.91	2.03	6.26	17.63	4.41	0.18
		Vegetable Oil	1000 gal/yr	2,300	1.94	1.94	0.13	28.75	5.75	0.15
			Maximum		2.91	2.03	6.26	28.75	13.64	0.89
Boiler 4	2,500,000	Natural Gas	MMCF/yr	17.38	0.07	0.07	0.005	0.87	0.73	0.05
Line 2 Dryer	19,500,000	Natural Gas	MMCF/yr	135.56	0.52	0.52	0.041	6.78	5.69	0.37
Line 5 Retrograde	4,800,000	Natural Gas	MMCF/yr	33.37	0.13	0.13	0.010	1.67	1.40	0.09
Line 3 Roaster	7,400,000	Natural Gas	MMCF/yr	51.44	0.20	0.20	0.015	2.57	2.16	0.14
Line 5 Fryer 1	4,800,000	Natural Gas	MMCF/yr	33.37	0.13	0.13	0.010	1.67	1.40	0.09
Line 5 Fryer 2	4,800,000	Natural Gas	MMCF/yr	33.37	0.13	0.13	0.010	1.67	1.40	0.09
Space Heaters	79,670,000	Natural Gas	MMCF/yr	553.87	2.10	2.10	0.166	27.69	23.26	1.52

**Lamb-Weston, American Falls
Trucks**

	WEIGHT						Road Segments Used (Number indicates number of times truck goes on segment per trip)												Trips per Day											
	Capacity (ton)	EMPTY (ton)	FULL (ton)	AVE. (ton)			Trips																							
					per day	per year	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Raw Potato Trucks	27	14.4	41.4	27.9	110	36,190	1	1	1	1	1	2	2						110	110	110	110	110	220	220					
Shipping Trucks	27	14.4	41.4	27.9	20	6,580	2	2	2	2	2					2			40	40	40	40	40					40		
Receiving Trucks	27	14.4	41.4	27.9	2	658											2	2											4	4
Onsite Transfers	27	14.4	41.4	27.9	8	2,632				2		2	2	2							16		16	16	16					
Frozen & Mash Waste	27	14.4	41.4	27.9	3	987	1	1	1	1	1						2	2	3	3	3	3	3						6	6
Hopper & Slurry Waste	27	14.4	41.4	27.9	7	2,303	1	1	1	1	1				2				7	7	7	7	7				14			
Starch	27	14.4	41.4	27.9	1	329	2	2	2	2		2	2						2	2	2	2		2	2					
Tare Dirt	27	14.4	41.4	27.9	2	658	1	1	1	1	1	2	2						2	2	2	2	2	4	4					
Total																	164	164	164	180	162	242	242	16	14	40	10	10		

Lamb-Weston, American Falls Unpaved Road Emissions

Ref: AP-42, Sect. 13.2.2, Unpaved Roads (9/98)

$$\text{Emission Factor (E) (lb/VMT)} = \frac{k (s/12)^a (W/3)^b}{(M/0.2)^c} ((365-p)/365)$$

Where:

s = silt % = 6.4

W = Mean Vehicle Weight (tons) = 27.9

M = Surface Moisture Content = 0.2

p = Number of days with 0.01 in. or more precip. per year = 86

	PM	PM10
k =	10	2.6
a =	0.8	0.8
b =	0.5	0.4
c =	0.4	0.3

Emission Factor (E) =	18.44	3.84
Control % =	80%	80%

Road Segment	Length ft	Trips per day	Daily VMT	Trips per yr	Annual VMT	PM Emissions			PM10 Emissions		
						lb/hr	lb/day	ton/yr	lb/hr	lb/day	ton/yr
1	150	164	4.7	53,956	1,533	1.07	17.19	2.16	0.22	3.58	0.45
2	400	164	12.4	53,956	4,088	2.86	45.83	5.76	0.60	9.53	1.20
3	125	164	3.9	53,956	1,277	0.90	14.32	1.80	0.19	2.98	0.37
4	250	180	8.5	59,220	2,804	1.96	31.44	3.95	0.41	6.54	0.82
5	550	162	16.9	53,298	5,552	3.89	62.25	7.83	0.81	12.95	1.63
6	450	242	20.6	79,618	6,786	4.75	76.08	9.57	0.99	15.83	1.99
7	75	242	3.4	79,618	1,131	0.79	12.68	1.59	0.16	2.64	0.33
8	425	16	1.3	5,264	424	0.30	4.75	0.60	0.06	0.99	0.12
9	250	14	0.7	4,606	218	0.15	2.45	0.31	0.03	0.51	0.06
11	450	10	0.9	3,290	280	0.20	3.14	0.40	0.04	0.65	0.08

Notes:

(1) Precipitation was not used in calculating the lb/hr emissions. Precipitation was used in calculating the ton/yr emissions.

(2) The lb/hr calculations are based on 16 hours per day.

Lamb-Weston, American Falls Paved Road Emissions

Ref: AP-42, Section 13.2.1, Paved Roads (10/97)

$$\text{Emission Factor (E) (lb/VMT)} = k(sL/2)^{0.65}(W/3)^{1.5}$$

Where:

VMT = vehicle mile travelled
sL = road surface silt loading (g/m²) = 0.5
W = Average vehicle weight (tons) = 27.9

k = PM PM10
 0.082 0.016

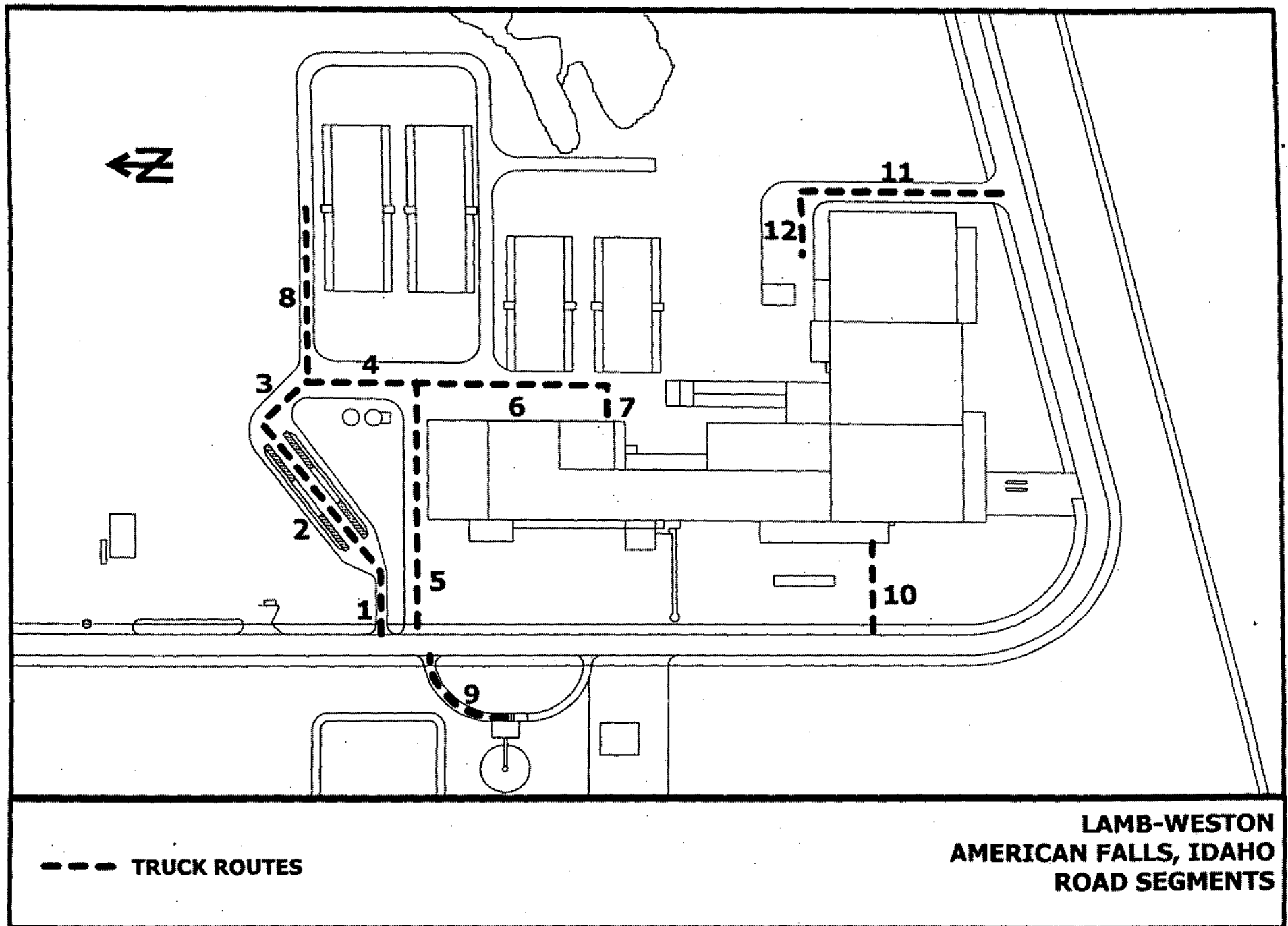
Emission Factor (E) = 0.94 0.18

Average operation hours/day: 16

Road Segment	Length ft	Trips per day	Daily VMT	Trips per yr	Annual VMT	PM Emissions			PM10 Emissions		
						lb/hr	lb/day	ton/yr	lb/hr	lb/day	ton/yr
10	225	40.0	1.7	13,160	561	0.10	1.61	0.26	0.02	0.31	0.05

Site Total Road Fugitive Dust Emissions

Roads	PM			PM10		
	lb/hr	lb/day	ton/yr	lb/hr	lb/day	ton/yr
Paved Total	0.10	1.61	0.26	0.02	0.31	0.05
Unpaved Total	16.95	271.17	34.10	3.53	56.41	7.09
Site Total	17.05	272.78	34.36	3.55	56.72	7.14



Lamb-Weston, American Falls Material Transfer Emissions

Ref: AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, (1/95)

$$\text{Emission Factor (lb/ton material transferred)} = k \cdot (0.0032)^{1.3} / ((U/5)^{1.3} / ((M/2)^{1.4}))$$

Where:

k= 0.35 for PM10
k= 0.74 for PM
U= Mean Wind Speed (mph)^m = 9
M= Material Moisture Content (%) = 3

Percent dirt in potato = 5
Hours of operation/day = 16

Calculations of Dirt Transfer Rates

Transfers Operation	Number Transfers per Location	Truck Capacity Ton	Trips per day	Trips per yr	Average Trips per hour	Potato Transfer Rate ton/yr	Dirt Transfer Rate ^m		
							ton/yr	ton/day	ton/hr
Receiving	1	27	110	36,190	6.88	977,130	48,857	148.50	9.28
Storage	2	27	8	2,632	0.50	142,128	7,106	21.60	1.35

PM Calculations

Transfers Operation	Emission Factor lb/ton	PM		
		lb/hr	lb/day	ton/yr
Receiving	0.0029	0.027	0.428	0.070
Storage	0.0029	0.0039	0.062	0.010
Total		0.031	0.490	0.081

PM10 Calculations

Transfers Operation	Emission Factor lb/ton	PM10		
		lb/hr	lb/day	ton/yr
Receiving	0.0014	0.013	0.202	0.033
Storage	0.0014	0.0018	0.029	0.005
Total		0.014	0.232	0.038

Notes:

- (1) Based on a potato dirt content of 5 percent. Same amount of dirt as deposited by potatoes is removed.
- (2) The mean wind speed was calculated from the Climatological Handbook, Columbia Basin States, Hourly Data, Volume 3 Part A, Dated June 1968, page 269. The monthly average wind speed for the Pocatello Reporting Station was averaged for the year.

APPENDIX B

Lamb Weston, American Falls

Modeling

MODELING REPORT FOR LAMB-WESTON, AMERICAN FALLS ADDITION OF OIL AS BACKUP FUEL

BACKGROUND

The modeling was carried out to demonstrate that the Lamb-Weston, American Falls Plant does not cause a violation of a National Ambient Air Quality Standard with the addition of diesel and vegetable oil as backup fuels. This demonstration is required by Idaho Administrative Code IDAPA 58.01.01.403.02, Permit Requirements for Tier II Sources, NAAQS. Modeling was performed for the criteria pollutants of SO₂, NO_x and PM₁₀ and for toxic air pollutants from burning diesel in Boilers 1, 2 and 3.

DISCUSSION OF SOURCE EMISSION INVENTORY

There are 9 fuel burning sources which emit PM₁₀, SO₂ and NO_x from 15 points and 8 process sources which emit PM₁₀ from 11 points. The sources modeled and the emission calculations are shown in Attachment A, Pages 1 through 4. The fugitive PM₁₀ sources of the space heaters, material handling and road emissions were not modeled.

For modeling the toxic air pollutants which exceeded the IDAPA 58.01.01.585 and 586 screening emission levels (EL), the emission rate for arsenic from diesel burning was modeled for Boilers 1, 2 and 3. The other pollutants which exceeded the EL were calculated by their emission ratio to arsenic. To provide more accurate results, the emission rates were multiplied by 10,000, the model was run and the results were divided by 10,000 and compared with the acceptable ambient concentration (AAC) for each pollutant that exceeded the EL.

The modeling calculated the estimated hourly emissions for each source at its maximum capacity, except for toxic air pollutants. An average annual capacity of 59% for each boiler was used to avoid exceeding the AAC for arsenic for each boiler.

DESCRIPTION OF THE SOURCE'S ENVIRONMENT

The terrain surrounding the plant is shown on the Plant Location Map in Attachment A, Page 5. The modeled buildings are shown projected on a 1992 aerial photo of the site in Attachment A, Page 6. The modeled emission points are shown on the Modeled Emission Points Drawing in Attachment A, Page 7. The buildings and roof heights used in the modeling are shown on the Modeled Buildings and Roof Heights Drawing in Attachment A, Page 8.

Lamb-Weston, American Falls

Comparison of October 15, 2001 Modeled Process Emissions with this Submittal

Modeled Production

	Line Production ton/hr	Modeled Production		PM10	
		Component Production ton/hr		Emission Factor lb/ton	Emissions lb/hr
Line 1 Dryer & Fryer	33.53	Dryer	33.53	0.0636	2.133
		Fryer (Reyco)	33.53	0.1	3.353
Line 2 Dryer & Fryer	27.43	Dryer	27.43	0.0636	1.745
		Fryer (Ducon)	27.43	0.1	2.743
Flake 2 Dryers	2.11	Drum Dryer 1	1.055	0.0636	0.067
		Drum Dryer 2	1.055	0.0636	0.067
Kice Baghouse		Kice	2.11	0.035	0.074
Pneumafil Baghouse		Pneumafil	2.11	0.028	0.059
Line 3 Dryer (Retrograde) & Roaster	11.08	Dryer (Retrograde)	11.08	0.0636	0.705
		Roaster (All drying emissions are from the retrograde.)			
Line 5 Dryer (Retrograde) & 2 Fryers	5.43	Dryer (Retrograde)	5.43	0.0636	0.345
		Fryer 1	2.715	0.1	0.272
		Fryer 2	2.715	0.1	0.272

Proposed Production

	Line Production ton/hr	Proposed Production		PM10	
		Component Production ton/hr		Emission Factor lb/ton	Emissions lb/hr
Line 1 Dryer & Fryer	39.375	Dryer	39.375	0.0636	2.504
		Fryer (Reyco)	39.375	0.1	3.938
Line 2 Dryer & Fryer	21.25	Dryer	21.25	0.0636	1.352
		Fryer (Ducon)	21.25	0.1	2.125
Flake 2 Dryers	2.11	Drum Dryer 1	1.055	0.0636	0.067
		Drum Dryer 2	1.055	0.0636	0.067
Kice Baghouse		Kice	2.11	0.035	0.074
Pneumafil Baghouse		Pneumafil	2.11	0.028	0.295
Mikro-Pulsaire		Mikro-Pulsair	2.11	0.035	0.148
Line 3 Dryer (Retrograde) & Roaster	11.08	Dryer (Retrograde)	11.08	0.0636	0.705
		Roaster (All drying emissions are from the retrograde.)			
Line 5 Dryer (Retrograde) & 2 Fryers	5.43	Dryer (Retrograde)	5.43	0.0636	0.345
		Fryer 1	2.715	0.2	0.543
		Fryer 2	2.715	0.2	0.543

Changes

	Line Production ton/hr	Component Production		PM10		Reason for Change
			ton/hr	Emission Factor lb/ton	Emissions lb/hr	
Line 1 Dryer & Fryer	5.845	Dryer	5.845	No Change	0.372	Production Increase
		Fryer (Reyco)	5.845	No Change	0.585	
Line 2 Dryer & Fryer	-6.18	Dryer	-6.18	No Change	-0.393	Production Decrease
		Fryer (Ducon)	-6.18	No Change	-0.618	
Flake 2 Dryers	No Change	Drum Dryer 1	No Change	No Change	No Change	Collects from 5 areas Added (Collects from 2 areas)
		Drum Dryer 2	No Change	No Change	No Change	
Kice Baghouse		Kice	No Change	No Change	No Change	
Pneumafil Baghouse		Pneumafil	No Change	No Change	0.236	
Mikro-Pulsaire		Mikro-Pulsair	2.11	0.035	0.148	
Line 3 Dryer (Retrograde) & Roaster	No Change	Dryer (Retrograde)	No Change	No Change	No Change	
		Roaster	No Change	No Change	No Change	
Line 5 Dryer (Retrograde) & 2 Fryers	No Change	Dryer (Retrograde)	No Change	No Change	No Change	Emission Factor more representative
		Fryer 1	No Change	0.1	0.272	
		Fryer 2	No Change	0.1	0.272	

MODELING METHODOLOGY

The EPA ISCST3, Version 00101, model was used. The model was run using the regulatory default options.

Surface meteorological data for Pocatello with mixing height data for Boise from the EPA SCRAM Website was used for the modeling. Pocatello surface data and Boise mixing height data for the years 1987-1991 was used because those are the most recent years available.

The plant is in a rural area based on the American Falls SW USGS maps showing less than 50% of the area within 3 kilometers surrounding the plant as being industrial, commercial or compact residential.

The modeling was performed using a 90 meter grid spacing centered on the main plant building. The initial grid array was 1980 meters by 1980 meters. An approximately 30 meter grid spacing was used along the site property lines. A grid spacing of 30 meters was used to locate the maximum impacts close to the plant. The grids exclude points within the plant property lines and points which fall within the boundaries of the modeled buildings. All grid points except for the fenceline points correspond to USGS Digital Elevation Model (DEM) data points.

The nearest sensitive receptor identified was the Hillcrest Grade School which is 3 miles (4.8 km) from the plant. Because of the distance, sensitive receptors were not included in the modeling.

MODELING RESULTS

Maps showing the results of the modeling runs are included in the attachments. The maps show the peak modeled value for each receptor and the year of the peak value. Input files, output files, the meteorological files and the terrain files are on the CDROM at the end of the report.

The modeling results were added to the background concentrations for American Falls which were provided by IDEQ to determine if the National Ambient Air Quality Standards (NAAQS) are exceeded. For SO₂ 3-hour and 24-hour averages and PM₁₀ 24-hour average, the second high for each year was used for comparison with the NAAQS. The following tables show the results of the modeling for each year and compare the results with the NAAQS:

SO₂ Modeling Results

Year	Annual			24 Hour 2nd High			3 Hour 2nd High		
	Model ug/m ³	Background (18.3 ug/m ³) plus Model Results ug/m ³	NAAQS ug/m ³	Model ug/m ³	Background (120 ug/m ³) plus Model Results ug/m ³	NAAQS ug/m ³	Model ug/m ³	Background (374 ug/m ³) plus Model Results ug/m ³	NAAQS ug/m ³
1987	9.7	28.0	80	63.7	183.7	365	165.7	539.7	1300
1988	14.9	33.2	80	75.0	195.0	365	165.4	539.4	1300
1989	9.4	27.7	80	58.7	178.7	365	140.9	514.9	1300
1990	10.1	28.4	80	85.8	205.8	365	165.3	539.3	1300
1991	9.4	27.7	80	61.1	181.1	365	153.9	527.9	1300

PM₁₀ Modeling Results

Year	Annual			24 Hour 2nd High		
	Model ug/m ³	Background (32.7 ug/m ³) plus Model Results ug/m ³	NAAQS ug/m ³	Model ug/m ³	Background (86 ug/m ³) plus Model Results ug/m ³	NAAQS ug/m ³
1987	5.4	38.1	50	26.2	112.2	150
1988	6.9	49.6	50	30.1	116.1	150
1989	5.7	38.4	50	28.8	114.8	150
1990	5.4	38.1	50	27.8	113.8	150
1991	5.6	38.3	50	24.0	110.0	150

NO_x Modeling Results

Year	Annual		
	Model ug/m ³	Background (40 ug/m ³) plus Model ug/m ³	NAAQS ug/m ³
1987	31.4	71.4	100
1988	46.6	86.6	100
1989	30.0	70.0	100
1990	32.1	72.1	100
1991	30.1	70.1	100

The highest 2nd high 3-hour average SO₂ result was 165.7 µg/m³ in 1987. The location is shown in Attachment B, Page 1. Adding the 3-hour background of 374 µg/m³ results in an estimated highest 2nd high 3-hour SO₂ impact of 539.7 µg/m³ which is less than the NAAQS limit of 1300 µg/m³.

The highest 2nd high 24-hour average SO₂ result was 85.8 µg/m³ in 1990. The location is shown in Attachment B, Page 4. Adding the 24-hour background of 120 µg/m³ results in an estimated highest 2nd high 24-hour SO₂ impact of 205.8 µg/m³ which is less than the NAAQS limit of 365 µg/m³.

The highest annual average SO₂ result from the modeling was 14.9 µg/m³ for 1988. The location is shown in Attachment B, Page 8. Adding the annual background of 18.3 µg/m³ results in an estimated maximum annual impact of 33.2 µg/m³ which is less than the NAAQS limit of 80 µg/m³.

The highest 2nd high 24-hour average PM₁₀ result was 30.1 µg/m³ in 1988. The location is shown in Attachment C, Page 2. Adding the 24-hour background of 86 µg/m³ results in an estimated highest 2nd high 24-hour impact of 116.1 µg/m³ which is less than the NAAQS limit of 150 µg/m³.

The highest annual average PM₁₀ result from the modeling was 6.9 µg/m³ for 1988. The location is shown in Attachment C, Page 5. Adding the annual background of 32.7 µg/m³ results in an estimated maximum annual impact of 39.6 µg/m³ which is less than the NAAQS limit of 50 µg/m³.

The highest annual average NO_x result from the modeling was 46.6 µg/m³ for 1988. The location is shown in Attachment D, Page 2. Adding the annual background NO_x of 40 µg/m³ results in an estimated maximum annual impact of 86.6 µg/m³ which is less than the NAAQS limit of 100 µg/m³.

The modeled toxic air pollutant that came closest to the AAC was arsenic for Boiler 3. The modeled impact was 2.29E-04 µg/m³ which is less than the AAC of 2.3E-04 µg/m³. The annual emission rate and diesel burning for all three boilers was limited to 59% of capacity so that the AAC for toxic air pollutants would not be exceeded.

CONCLUSION

The modeling was carried out to demonstrate that the Lamb-Weston, American Falls Plant does not cause a violation of a National Ambient Air Quality Standard with the addition of the capability of burning diesel and vegetable oil in the boilers. This demonstration is required by Idaho Administrative Code IDAPA 58.01.01.403.02, Permit Requirements for Tier II Sources, NAAQS. The modeling results show that a National Ambient Air Quality Standard will not be exceeded. The Annual NO_x standard of 100 µg/m³ is the closest limit approached with a maximum estimated concentration of 86.6 µg/m³ when a background annual concentration of 40 µg/m³ is added to the modeling results of 46.6 µg/m³.

Modeling was also performed to demonstrate that the toxic air pollutant limits of IDAPA 58.01.01.585 and 586 were not violated by the additional capability of burning diesel fuel in Boilers 1, 2 and 3. The results showed that the acceptable ambient concentrations (AAC) will not be exceeded by these additions if the amount of diesel burned in the boilers is limited to 59% of the annual capacity.

ATTACHMENT A
MODELING PARAMETERS

Lamb-Weston, American Falls

Modeled Fuel Burning Emissions

Emission Factors

			PM ₁₀	NO _x	SO ₂
Boiler 1	Natural Gas	lb/MMCF	7.6	45	0.6
	Diesel	lb/1000 gal	2.3	10	7.1
	Vegetable Oil	lb/1000 gal	1.69	12.5	0.11
Rest of Plant	Natural Gas	lb/MMCF	7.6	100	0.6
	Diesel	lb/1000 gal	2.3	20	7.1
	Vegetable Oil	lb/1000 gal	1.69	25	0.11

Emissions

	Boiler Capacity				PM ₁₀	NO _x	SO ₂
	Btu/hr	Fuel			lb/hr	lb/hr	lb/hr
Boiler 1	98,500,000	Natural Gas	MMCF/hr	0.0966	0.734	4.346	0.058
		Diesel	1000 gal/hr	0.719	1.654	7.190	5.105
		Vegetable Oil	1000 gal/hr	0.758	1.281	9.471	0.083
		Maximum			1.654	9.471	5.105
Boiler 2	47,180,000	Natural Gas	MMCF/hr	0.0463	0.352	4.625	0.028
		Diesel	1000 gal/hr	0.344	0.792	6.888	2.445
		Vegetable Oil	1000 gal/hr	0.363	0.613	9.073	0.040
		Maximum			0.792	9.073	2.445
Boiler 3	46,726,800	Natural Gas	MMCF/hr	0.0458	0.348	4.581	0.027
		Diesel	1000 gal/hr	0.341	0.784	6.821	2.422
		Vegetable Oil	1000 gal/hr	0.359	0.607	8.986	0.040
		Maximum			0.784	8.986	2.422
Boiler 4	2,500,000	Natural Gas	MMCF/hr	0.00245	0.019	0.245	0.0015
Line 2 Dryer	19,500,000	Natural Gas	MMCF/hr	0.01912	0.145	1.912	0.0115
Line 5 Retrograde	4,800,000	Natural Gas	MMCF/hr	0.00471	0.036	0.471	0.0028
Line 3 Roaster	7,400,000	Natural Gas	MMCF/hr	0.00725	0.055	0.725	0.0044
Line 5 Fryer 1	4,800,000	Natural Gas	MMCF/hr	0.00471	0.036	0.471	0.0028
Line 5 Fryer 2	4,800,000	Natural Gas	MMCF/hr	0.00471	0.036	0.471	0.0028

Lamb-Weston, American Falls Modeled Process Emissions

Emission Factors

Dryer - 1994 Source Test on Line 1 Dryer adjusted for finished line production.

Fryer - 1999 Source Test on Lamb-Weston, Twin Falls, Line 4.

Kice - 70 lb/ton emissions with 99.95% baghouse efficiency. $[70 \times (1 - 0.9995) = 0.035]$

Pneumafil - 70 lb/ton emissions with 99.96% baghouse efficiency. $[70 \times (1 - 0.9996) = 0.028]$

Process Emissions

Modeled production is higher than current production to allow for possible future expansion.

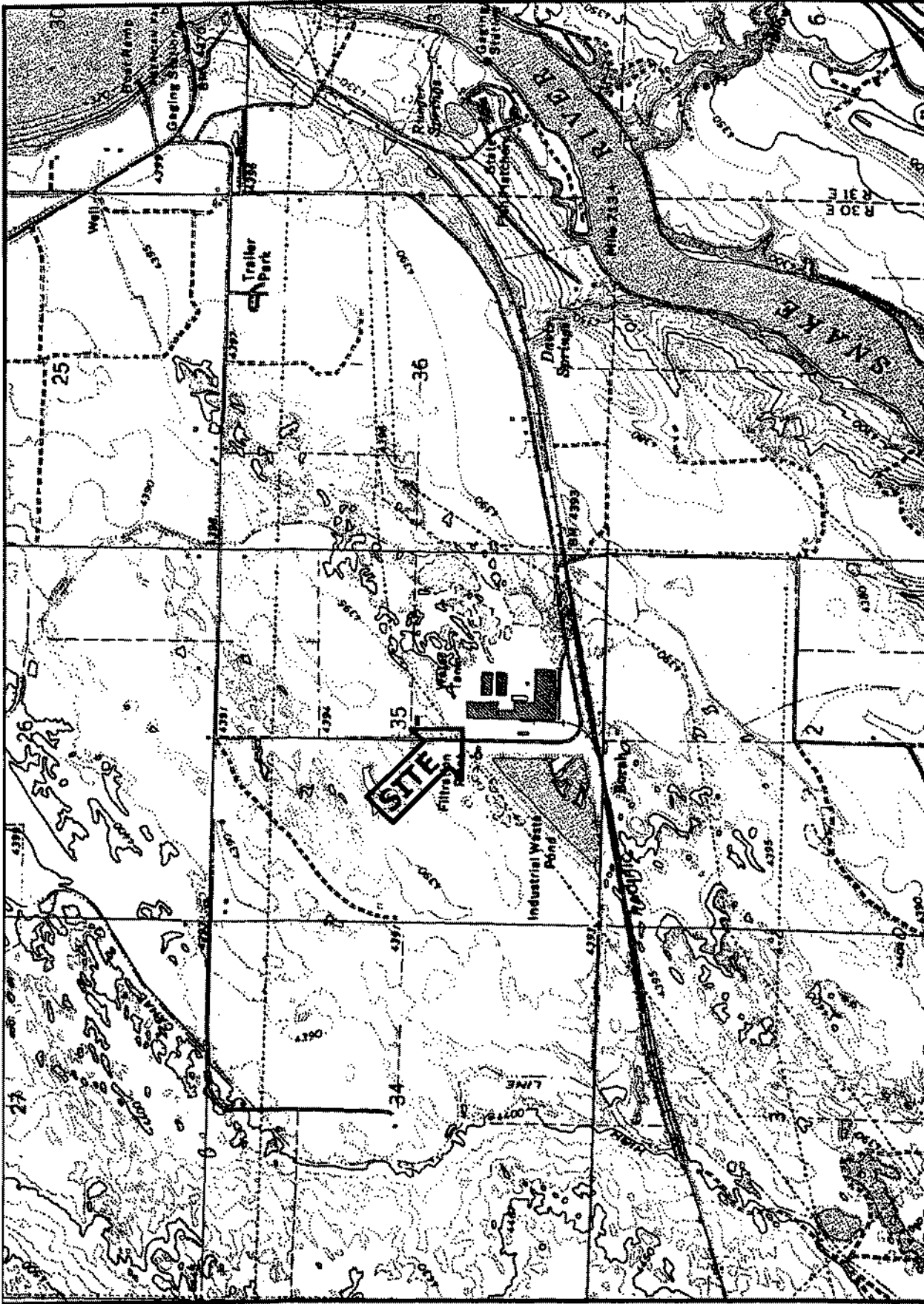
	Current Production		Modeled Production		PM ₁₀	
			Line Production	Component Production	Emission Factor	Emissions
	ton/hr	Basis	ton/hr	ton/hr	lb/ton	lb/hr
Line 1 Dryer & Fryer	30.54	4/13/2000 Letter	33.53	Dryer 33.53 Fryer (Reyco) 33.53	0.0636 0.1	2.133 3.353
Line 2 Dryer & Fryer	8.25	4/13/2000 Letter	27.43	Dryer 27.43 Fryer (Ducon) 27.43	0.0636 0.1	1.745 2.743
Flake 2 Dryers	1.59	4/13/2000 Letter	2.11	Drum Dryer 1 1.055 Drum Dryer 2 1.055	0.0636 0.0636	0.067 0.067
Kice Baghouse				Kice 2.11	0.035	0.074
Pneumafil Baghouse				Pneumafil 2.11	0.028	0.059
Line 3 Dryer (Retrograde) & Roaster	8.30	10/10/2000 Permit	11.08	Dryer (Retrograde) 11.08 Roaster	0.0636	0.705
All drying emissions are assumed to be from the retrograde.						
Line 5 Dryer (Retrograde) & 2 Fryers	4.10	10/10/2000 Permit	5.43	Dryer (Retrograde) 5.43 Fryer 1 2.715 Fryer 2 2.715	0.0636 0.1 0.1	0.345 0.272 0.272

**Lamb-Weston, American Falls
Modeled Source Parameters**

Component	Model ID	UTM		Base Elevation (m)	Source Elevation		Exit Temp.		Exit Velocity		Source Exit Diameter	
		X (m)	Y (m)		(ft)	(m)	°F	°K	acfm	m/s	(ft)	(m)
Boiler 1	BOILER1	343346	4736441	1344	51	15.54	505	535.9	31,843	11.84	4.17	1.27
Boiler 2	BOILER2	343346	4736449	1344	51	15.54	567	570.4	16,232	9.47	3.33	1.01
Boiler 3	BOILER3	343346	4736454	1344	51	15.54	561	567.0	15,983	9.32	3.33	1.01
Boiler 4	BOILER4	343555	4736594	1344	11	3.35	425	491.5	889	1.30	2.10	0.64
Line 1 Dryer	L1DRY1	343501	4736461	1344	51	15.54	145	335.9	15,800	9.22	3.33	1.01
	L1DRY2	343501	4736455	1344	51	15.54	103	312.6	13,700	7.99	3.33	1.01
	L1DRY3	343506	4736445	1344	51	15.54	134	329.8	17,200	10.03	3.33	1.01
	L1DRY4	343500	4736440	1344	51	15.54	164	346.5	34,800	20.30	3.33	1.01
Line 2 Dryer	L2DRY1	343523	4736410	1344	46	14.02	175	352.6	11,000	6.99	3.19	0.97
	L2DRY2	343522	4736404	1344	46	14.02	175	352.6	16,000	10.17	3.19	0.97
	L2DRY3	343522	4736398	1344	46	14.02	175	352.6	16,000	10.17	3.19	0.97
	L2DRY4	343522	4736391	1344	46	14.02	175	352.6	16,000	10.17	3.19	0.97
	L2DRY5	343522	4736384	1344	46	14.02	175	352.6	16,000	10.17	3.19	0.97
No. 1 Drum Dryer	DRUM1	343508	4736379	1344	47	14.33	103	312.6	13,100	5.30	4.00	1.22
No. 2 Drum Dryer	DRUM2	343511	4736379	1344	47	14.33	103	312.6	13,100	5.30	4.00	1.22
Line 3 Retrograde Dryer	L3RETRO	343522	4736358	1344	50	15.24	175	352.6	14,700	7.54	3.55	1.08
Line 5 Retrograde Dryer	L5RETRO1	343530	4736381	1344	50	15.24	175	352.6	12,000	9.49	2.86	0.87
	L5RETRO2	343530	4736384	1344	50	15.24	175	352.6	12,000	9.49	2.86	0.87
	L5RETRO3	343530	4736387	1344	50	15.24	175	352.6	12,000	9.49	2.86	0.87
Line 3 Roaster	L3ROAST	343519	4736362	1344	46	14.02	180	355.4	2,000	1.58	2.86	0.87
Ducon Scrubber	DUCON	343507	4736396	1344	53	16.15	173	351.5	37,579	15.19	4.00	1.22
Reyco Scrubber	REYCO	343499	4736389	1344	50	15.24	150	338.7	16,000	14.55	2.67	0.81
Line 5 Fryer No. 1	L56SCR1	343544	4736350	1344	35	10.67	173	351.5	2,800	18.11	1.00	0.30
Line 5 Fryer No. 2	L56SCR2	343544	4736345	1344	35	10.67	173	351.5	2,800	18.11	1.00	0.30
Kice Filter	KICE	343506	4736360	1344	43.3	13.21	70	294.3	1,750	14.62	0.88	0.27
Pneumafil Filter	PNEUMA	343533	4736371	1344	42.6	12.98	70	294.3	5,700	18.28	1.42	0.43

Lamb-Weston, American Falls Modeled Source Emissions

Component	PM ₁₀ Emissions					NO _x Emissions			SO ₂ Emissions		
	Production lb/hr	Fuel Burning lb/hr	Total lb/hr	per Stack		Total lb/hr	per Stack		Total lb/hr	per Stack	
				lb/hr	g/s		lb/hr	g/s		lb/hr	g/s
Boiler 1		1.654	1.654	1.654	0.2084	9.471	9.471	1.1933	5.10474	5.10474	0.6431
Boiler 2		0.792	0.792	0.792	0.0998	9.073	9.073	1.1432	2.44509	2.44509	0.3080
Boiler 3		0.784	0.784	0.784	0.0988	8.986	8.986	1.1322	2.42161	2.42161	0.3051
Boiler 4		0.019	0.019	0.019	0.0023	0.245	0.245	0.0309	0.00147	0.00147	0.0001
Line 1 Dryer	2.133		2.133	0.533	0.0672						
				0.533	0.0672						
				0.533	0.0672						
				0.533	0.0672						
Line 2 Dryer	1.745	0.145	1.890	0.378	0.0476	1.912	0.382	0.0482	0.01147	0.00229	0.0002
				0.378	0.0476		0.382	0.0482		0.00229	0.0002
				0.378	0.0476		0.382	0.0482		0.00229	0.0002
				0.378	0.0476		0.382	0.0482		0.00229	0.0002
				0.378	0.0476		0.382	0.0482		0.00229	0.0002
No. 1 Drum Dryer	0.067		0.067	0.067	0.0085						
No. 2 Drum Dryer	0.067		0.067	0.067	0.0085						
Line 3 Retrograde Dryer	0.705		0.705	0.705	0.0888						
Line 5 Retrograde Dryer	0.345	0.036	0.381	0.127	0.0160	0.471	0.157	0.0198	0.00282	0.00094	0.0001
				0.127	0.0160		0.157	0.0198		0.00094	0.0001
				0.127	0.0160		0.157	0.0198		0.00094	0.0001
Line 3 Roaster		0.055	0.055	0.055	0.0069	0.725	0.725	0.0914	0.00435	0.00435	0.0005
Ducon Scrubber	2.743		2.743	2.743	0.3456						
Reyco Scrubber	3.353		3.353	3.353	0.4225						
Line 5 Fryer No. 1	0.272	0.036	0.307	0.307	0.0387	0.471	0.471	0.0593	0.00282	0.00282	0.0003
Line 5 Fryer No. 2	0.272	0.036	0.307	0.307	0.0387	0.471	0.471	0.0593	0.00282	0.00282	0.0003
Kice Filter				0.074	0.0093						
Pneumafil Filter				0.059	0.0074						



LAMB-WESTON AMERICAN FALLS, IDAHO PLANT LOCATION MAP

FROM
USGS 7.5 MINUTE
AMERICAN FALLS SW
QUADRANGLE

